

**REMARKS**

**I. PRELIMINARY MATTERS**

In the Amendment filed September 11, 2006, Applicant inadvertently presented the original claim set. Thus, the claims presented in that Amendment did not reflect Applicant's previous claim amendments in the Amendments filed December 16, 2005, and April 1, 2005.

Accordingly, in the present Amendment, Applicant is presenting the claim set as filed on December 16, 2005, except that the amendment to Claim 1 in the Amendment filed September 11, 2006, has also been incorporated.

**II. CLAIM AMENDMENTS**

In the present Amendment, Claims 1-9 have been amended for proper antecedent basis and consistency. For example, the claims have been amended to use the term "said."

Claim 1 has been amended for further clarity by replacing the recitation "and the products resulting from said endothermic reactions are totally independent one from the others comprising" with the recitation "does not comprise the products resulting from the endothermic reactions, comprising." Claim 1 has also amended for further clarity by replacing the recitation "wherein the process further comprises the step of" with "-".

The preamble of Claim 1 has been amended for further clarity by replacing the recitation "Process . . . ." with the recitation "A process . . . ." Accordingly, the preamble of Claims 2-6, which depend directly or indirectly from Claim 1, have been amended to replace the recitation "Process . . ." with the recitation "The process . . . ."

The preamble of Claim 7 has been amended for further clarity by replacing the recitation "Process . . . ." with the recitation "A process . . . ." Accordingly, the preamble of Claim 9 has been amended to replace the recitation "Process . . ." with the recitation "The process . . . ."

Claims 3, 5 and 6 have been amended to delete the recitation “at a predetermined pressure.”

Claim 6 has been amended for proper antecedent basis by adding the recitation “to obtain a suitably heated flow comprising water.”

Claim 7 has been amended to recite that the heating fluid is obtained through the process for obtaining a heating fluid according to Claim 1. Accordingly, Claim 8 has been cancelled, and Claim 9 has been amended to depend from Claim 7.

No new matter has been added, and entry of the Amendment is respectfully requested. After entry of the Amendment, Claims 1-7 and 9 will be pending.

### **III. REJECTION UNDER 35 U.S.C. § 112**

In Paragraph No. 2 of the Action, Claims 1 and 7 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite.

Applicant traverses and respectfully requests the Examiner to reconsider in view of the amendment to the claims and the following remarks.

In particular, from the process steps shown in Figure 1, it is clear that it is impossible for the heating fluid to contain the endothermic reaction products.

The heating fluid and the reactants are fed to an exchanger type reformer (12) through separate flows (9 and 3, respectively); in the exchanger type reformer (12) the reagents react by indirect heat exchange with the heating fluid thus obtaining a synthesis gas; the so obtained reaction products then leave the exchanger type reformer (12) through a line (4) and are fed to a synthesis section (30), while the (“colder”) heating fluid leaves the exchanger type reformer (12) through a distinct and separate line (9) for its expansion in an expansion step (24) for recovering energy. As discussed at page 8, lines 16-21, and page 10, line 18 to page 11, line 3, wherein it is

clearly and unambiguously stated that the heating fluid is subjected to expansion steps in order to advantageously recover energy. Moreover, after the expansion steps, the heating fluid is further vented to the atmosphere or condensed (see, e.g., the description at page 20, lines 16-23). If the heating fluid contains reaction products, they cannot be discharged and have to be maintained at the desired high pressure for the intended synthesis.

Accordingly, Claim 1 as amended clearly recites the process steps necessary to obtain the heating fluid according to the present recited invention. Further, Claim 1 is complete and definite since it claims how the heating fluid is obtained. Claim 7 is also clear and definite, since Claim 7 has been amended to recite that the heating fluid is obtained by the process according to Claim 1.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the §112 rejection of Claims 1 and 7.

#### **IV. THE EXAMINER'S CLAIM OBJECTIONS**

In Paragraph No. 4 of the Action, the Examiner objects to Claims 2, 3, 5 and 6.

With respect to the Examiner's suggestion to replace the phrase "characterized by the fact" with "wherein," Applicant again points out that this amendment to the claims was already made in a previously filed Amendment. Thus, the claims as presented in this Amendment do not contain the phrase "characterized by the fact."

With respect to Claim 2, Applicant points out that the amendment suggested by the Examiner was made in the Amendment filed April 1, 2005.

With respect to Claims 3, 5 and 6, without acquiescence in the merits of the objection, the recitation "predetermined pressure" has been deleted from the claims.

V. REJECTION UNDER 35 U.S.C. § 103

In Paragraph No. 7 of the Action, claims 1-9 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 5,011,625 ("Le Blanc").

Applicant traverses and respectfully requests the Examiner to reconsider in view of the amendment to the claims and the following remarks.

The present recited invention is patentable over the disclosure of Le Blanc, *at least* because Le Blanc does not disclose or fairly suggest obtaining a heating fluid according to the process of Claim 1, wherein the heating fluid does not comprise the products resulting from the endothermic reactions.

Instead, according the process taught by Le Blanc, the heating fluid is obtained by combining the products resulting from both the exothermic catalytic reforming zone and the endothermic reaction zone, i.e., such a heating must contain the products resulting from the endothermic reactions. See, e.g., Le Blanc at column 4, lines 13-15.

Moreover, it is also noted that present Claim 1 recites that the obtained high temperature fluid comprises oxygen. In contrast, Le Blanc *explicitly* excludes this composition, as can be seen in Tables I and II, Reference Numerals 9, 14 and 15. For example, the first mixed feed (7) contains O<sub>2</sub>, among other compounds, while line (9) leaving the steam reformer (8), the second reformed gas (14) within the reactor-exchanger (13) and the raw ammonia synthesis gas (15) leaving the reactor-exchanger (15) do not contain any O<sub>2</sub>.

Thus, it is clear that the process of the present claimed invention is not taught by Le Blanc.

Applicants also submit that the present claimed invention would not have been obvious from Le Blanc. In particular, in the present claimed invention, the obtained heating fluid does not comprise the products resulting from the endothermic reactions.

This difference is of crucial importance since the heating fluid obtained in Le Blanc cannot be used to recover energy through expansion. Indeed, the heating fluid of Le Blanc consists of ammonia synthesis gases (see, column 4, lines 14-23), i.e., reactants, which are exclusively destined to be converted to a corresponding chemical product (ammonia). On the other hand, the present claimed process advantageously allows a large reduction in energy consumption and, in particular, allows for energy recovery, which is not achievable with the process of Le Blanc. See, e.g., the present specification at page 8, lines 16-21, page 10, line 10 to page 11, line 15, and page 19, lines 13-16.

Furthermore, Le Blanc is completely silent with respect to the technical problems solved by the present recited invention. In accordance with the present invention, a reforming process is provided that uses an exchanger type reformer as a reforming apparatus, improving its performance in terms of reliability and maintenance costs, while at the same time allowing overall energy consumption lower than that of the conventional reforming processes which employ kiln reformers. See the present specification at page 6, lines 22-31. Moreover, Le Blanc cannot be said to suggest the present recited process because of the substantial technical differences pointed out above.

In view of the above, Applicant respectfully requests reconsideration and withdrawal of the §103 rejection based on *Blanc*.

## VI. CONCLUSION

Allowance of Claims 1-7 and 9 is respectfully requested.

AMENDMENT UNDER 37 C.F.R. § 1.116  
Application No.: 09/802,925

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If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.


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